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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817.575	04/02/2004	Marc Lamberton	200208994-2	3808

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HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
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EXAMINER

NGUYEN, KHAI N

ART UNIT PAPER NUMBER

2614

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02/01/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/817,575	Applicant(s) LAMBERTON ET AL.	
	Examiner Khai N. Nguyen	Art Unit 2614	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on November 07, 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on April 02, 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment filed on November 7, 2007 has been entered. Claims 6-7, 13-15, 17, 20-21, and 26-29 have been amended. No claims have been canceled. No claims have been added. Claims 1-29 are still pending in this application, with claims 1 and 22 being independent.

### ***Claim Objections***

2. Claim 1 is objected to because of the following informalities: The word "queueing" in the second step should be changed to "queuing". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 20 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. This amended claim 20 is claimed for the computer program code, and therefore this claim did not fall within at least one of the four enumerated categories of patentable subject matter recited in section 101 (i.e., process, machine, manufacture, or composition of matter).

Similarly, method claims 1-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. These method claims (1-29) according to the specification (page 7 lines 20-22) can be performed by "a computer program code". Therefore, these method claims are interpreted as software claims which are non-statutory.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-8 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roque et al. (U.S. Publication 2002/0186687 A1 hereinafter "Roque") in view of Sun et al. (U.S. Publication 2002/0188650 A1 hereinafter "Sun").

Regarding claims 1-3, Roque teaches a method of controlling a local process that forms part of a first processing entity (Fig. 3, 121-122 "ASP") said first processing entity maintaining a plurality of associations with a plurality of remote processes in a second processing entity (Fig. 3, 131-132 "GSP"), said method comprising the steps of:

- receiving a failure message from a remote process (Fig. 6, 30-2 SGPIA/SGPDOWN) indicating a fault affecting an association linking the local process (Fig. 6, ASP-X) with that remote process (Figs. 6-12, paragraphs [0335]-[0336] hereinafter "par", i.e., remote process "SGP-A' sends an SGPDOWN "failure" message);
- queuing data messages destined for that remote process (Figs. 6-12, par [0385], i.e., stop signaling traffic messages);
- controlling the transmission of an acknowledgement of the failure message (Figs. 6-12, SGPIA-ACK/SGPDOWN-ACK) so that data messages pending on the association are received at that remote process before the acknowledgment of the failure message (Figs. 6-12, par [0355]); and
- initiating a traffic diversion to set up an alternate path between said first processing entity and said second processing entity for queued data messages (Figs. 6-12 "SGPIA or SGPDOWN is received", par [0350]-[0354], i.e., either use an alternate SGP that is active or start an activation procedure).

However, Roque does not explicitly disclose controlling the delayed acknowledgement with the delay that can be set with a predeterminable time period.

In the same field of endeavor, Sun teaches an explicit, delayed acknowledgement messages protocol to control when to send an acknowledgement message (Sun – par [0014] lines 1-9), and it is old and well known in the art that the explicit delay is inherent “a predeterminable time period” by design. Also, Sun teaches a traffic diversion to set up an alternate path when a failure occurs (Sun – par [0014] lines 12-16) and it is old and well known in the art that traffic diversion is a must when a failure occurs in a highly redundancy/fault tolerant system.

The advantage of Sun's method is the protocol sends an acknowledgement with an explicit controlled delay to ensure the completion of pending messages before the acknowledgement would be sent and traffic being diverted when a failure occurs (Sun – par [0014]-[0015]).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the explicit delayed acknowledgement protocol and divert traffic, as taught by Sun, into Roque's method in order to enhance the acknowledgement step when a failure occurs.

Regarding claims 4 and 5, Roque teaches a method wherein the delay is determined by transmission and acknowledgment of a heartbeat message (par [0059],

i.e., heartbeat message SIGTRAN UA standard protocol runs over a transport layer) and wherein the controlling comprises sending the acknowledgement of the failure message on the data stream used for the data messages (Fig. 6, par [0355]).

However, Roque does not specifically disclose the delay. But, Sun teaches an explicit delayed acknowledgement messages protocol (Sun –par [0014]). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the delay time by using the time for transmission and acknowledgement of a heartbeat message.

Regarding claims 6-8, Roque teaches a method comprising testing the association to determine if the association is active and, if not, dropping messages queued for the association (par [0058], i.e., leans on the status of the SCTP-association); a plurality of associations between a plurality of local processes and a plurality of remote processes (Figs. 3-4, par [0065], and par [0071]); and informing other local processes of the fault so that such other local processes can avoid involving the failed association in traffic diversion procedures initiated by them (Figs. 13-14, par [0400], i.e., received "SG\_INACTIVE/SG\_DOWN", then such ASP will send a notification to all Signaling Gateway Processes (SGPs) connected to it).

Regarding claim 16, Roque teaches a method wherein the message indicating the fault is an ASP\_INACTIVE or ASP\_DOWN message (Fig. 6, 30.1, ASP-DOWN/ASPIA "inactive", and ASPDOWN-ACK/ASPIA-ACK) and the acknowledgement being

respectively an ASP\_INACTIVE\_ACK message or an ASP\_DOWN\_ACK message (Fig. 6, 30.1, par [0047]-[0048], par [0052]-[0053], and [0330]-[0331]).

Regarding claims 17-19, Roque teaches a method comprising the initiating of a switch back procedure to include a new association linking a local process with a remote process (Figs. 15-16, par [0417]-[0423], i.e., ASP to change the status of a SG to "SG\_ACTIVE"); informing other local processes of the new association so that such other local processes can begin involving the new association (Figs. 15-16, par [0417], i.e., send notification "SG active" to all SGPs); and wherein the associations are SCTP associations (Fig. 2, 109, Fig. 5, 129, par [0071] and par [0126], i.e., connections are made using SCTP as transport protocol "called in SIGTRAN's terminology SCTP-associations").

Regarding claims 20-21, Roque teaches a signaling gateway comprising a plurality of local processes that are controlled using a computer program code element (par [0068], i.e., logical entity that performs in both SG "signaling gateway" and AS "application server").

7. Claims 9-12, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roque in view of Sun as applied to claims 1 and 7 above, and further in view of Performance Technologies – Tutorial: Interworking Switched Circuit and Voice-over-IP Networks, August 22, 2001, hereinafter "Performance".



Regarding claims 9-12 and 14-15, Roque teaches a method comprises determining the messages are TCAP messages and/or non TCAP messages (par [0009], i.e., SCCP, MAP, TCAP); and further comprising determining whether pending messages form part of a stateful or stateless transaction, and, if so, finding an alternative local process to provide an alternative path to the same remote process or to another remote process (par [0025], i.e., a set of User Adaptation (UA) layer "one per type of protocol to be transported", and par [0056] –[0057]), wherein the first processing entity is a signaling gateway (Fig. 5, 50 "SGP"), the local processes being signaling gateway processes having a common point code or set of point codes (Fig. 2, MTP3, Fig. 5, par [0009], i.e., MTP3 unique address for a node, and par [0016]), and wherein the second processing entity is an application server (Fig. 5, 60 "ASP"), the remote processes being application server processes having a common routing key (Fig. 5, par [0037 and par[0041], i.e., SIGTRAN routing key "RK").

However, Roque does not specifically disclose the stateful, stateless, and point codes.

In the same field of endeavor, Performance teaches the method and system to provide signaling in the Switched Circuit and VoIP networks that include the TCAP signaling messages using the SCCP (Performance – page 4 second paragraph), connectionless "stateless" and connection-oriented "stateful" transports with the

Signaling System 7 (SS7) messages are being routed to the SG based on point code (Performance - page 11, paragraphs 2nd-4<sup>th</sup>). The stateless "connectionless" and stateful "connection-oriented" terminologies are being equivalently used in SIP protocol (Performance – page 12, paragraphs 5<sup>th</sup>-6<sup>th</sup>, also see [http://en.wikipedia.org/wiki/Connectionless\\_protocol](http://en.wikipedia.org/wiki/Connectionless_protocol)).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the detail about stateless, stateful and point code, as taught by Performance's tutorial, into Roque's method in order to enhance the transport of the Switched Circuit signaling messages.

8. Claims 13, 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roque in view of Sun, and in view of Performance, and further in view of Suzuki (U.S. Patent Publication 2002/0156925 A1).

Regarding claim 13, Roque, Sun and Performance disclose everything claimed as applied above (see claim 1). However, Roque, Sun and Performance do not specifically disclose wherein the traffic diversion comprises modifying routing tables.

In the same field of endeavor, Suzuki teaches a method and system of SS7 network with a Signaling Gateway (Suzuki - Fig. 1) that when a failure is occurred, find an alternate path and modifying the routing table (Fig. 5, S14-S20, par [0060], i.e., detects a failure and determines destinations based on SLS, par [0063], i.e., creates the routing table and sends it to the SGPs).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the detail about modifying the routing table, as taught by Suzuki, into Roque's method in order to enhance the transport of the Switched Circuit signaling messages.

Regarding claims 22 and 29, Roque teaches a method of recovering failure in a distributed signaling gateway maintaining a plurality of associations between signaling gateway processes of said distributed signaling gateway and application server processes of an application server (Fig. 1, 121-122 "Application Servers (ASs)", Fig. 1, 131-132 "Signaling Gateways (SGs)", par [0125]), said method comprising the steps of:

initiating a traffic diversion in response to a failure message to set up an alternate path between said signaling gateway processes and said application server processes in ease of fault affecting an association (Fig. 12 "SGPIA or SGPDOWN is received", par [0350]-[0354], i.e., either use an alternate SGP that is active or start an activation procedure).

initiating a switch back to include a new association linking a signaling gateway process and an application server process (Figs. 15-16, par [0417]-[0423], i.e., ASP to change the status of a SG to "SG\_ACTIVE").

according to the change of status of any association, updating routing tables capable of routing data messages received by said signaling gateway processes to its destined application server processes (Figs. 6-12, par [0317]-[0321], i.e., SGP-A wants

to actively serve for traffic messages, then ASP-X will update the status of SGP, as well as the routing information elements (RIE)); and

distributing sequentially messages from said signaling gateway to said plurality of application server processes according to said routing tables, and said routing table are SLS routing table (Figs. 6-12, par [0350]-[0354]).

However, Roque and Sun do not specifically disclose in detail about updating the SLS routing tables and distributing sequentially messages of the failed signaling gateway.

In the same field of endeavor, Suzuki teaches a method and system of SS7 network with a Signaling Gateway (Suzuki - Fig. 1) that when a failure is occurred, updates the routing table (Suzuki - Fig. 5, S14-S20, par [0060], i.e., detects a failure and determines destinations based on SLS, par [0063], i.e., creates the routing table and sends it to the SGPs), and distributing sequentially messages of the failed signaling gateway (Suzuki - Fig.1, Fig. 5, par [0064], i.e., guarantee of an order of sending signal since the SLS information included in the signals is not changed).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the detail about updating the SLS routing table and distributing sequentially messages, as taught by Suzuki, into Roque's method in order to enhance the transport of the Switched Circuit signaling messages.

Regarding claims 23 -25, and 28, Roque teaches a method wherein said step of initiating a traffic diversion and switch back further comprising the steps of:

- starting a protection timer (par [0061] – lines 2-5, i.e., heartbeat time-out);
- queuing messages destined for the application server process of the new association (Fig. 12, par [0385], i.e., stop signaling traffic messages);
- informing other signaling gateway processes (Fig. 13 - paragraph [0398], i.e., sending status notification to all SGPs connected to it);
- controlling the transmission of an acknowledgement (Figs. 6-12, par [0355]); and
- finding alternate path/active signaling gateway to forward/divert subsequent stateless/non-TCAP or stateful/TCAP processing messages onto another application server process through another association or through an alternate signaling gateway process still associated with the same application server process (Fig. 12 “SGPIA or SGPDOWN is received”, par [0350]-[0354], i.e., either use an alternate SGP that is active or start an activation procedure), and TCAP and non-TCAP messages identified by transaction identification numbers (par [0077]-[0078], i.e., message class “MC” and message identifier “MI”); and
- re-computing said routing tables (par [0404]-[0407], i.e., additional routing information element);

Roque does not explicitly disclose controlling the acknowledgement, and the stateful and stateless processing messages. However, Sun teaches an explicit, delayed

acknowledgement messages protocol to control when to send an acknowledgement message (Sun – par [0014] lines 1-9), Performance teaches the TCAP signaling messages using the SCCP (Performance – page 4 second paragraph), connectionless “stateless/non-TCAP” and connection-oriented “stateful/TCAP” transports with the Signaling System 7 (SS7) messages are being routed to the SG (Performance - page 11), and Suzuki teaches when a failure is occurred, updates the routing table (Fig. 5, S14-S20, par [0060], i.e., detects a failure and determines destinations based on SLS, par [0063], i.e., creates the routing table and sends it to the SGPs).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate the detail about controlling the acknowledgement, stateless and stateful processing messages, and updating the routing table, as taught by Sun, Performance and Suzuki, into Roque's method in order to enhance the transport of the Switched Circuit signaling messages.

Regarding claims 26-27, Roque teaches the method wherein said signaling gateway is coupled to a signaling end point across a signaling system No. 7 network, and wherein each signaling gateway process of said signaling gateway is coupled to each application server process across an internet protocol network (Figs. 1-4, par [0004]-[0011], i.e., PSTN, ISDN, IP networks with SGPs and ASPs with several protocols via SS7 (e.g., Q.931, MTP, MTP3, etc.)).

***Response to Arguments***

9. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

10. Claims 1-29 are rejected and claim 1 is objected to, in this office action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai N. Nguyen whose telephone number is (571) 270-3141. The examiner can normally be reached on Monday - Thursday 6:30AM - 5:00PM.

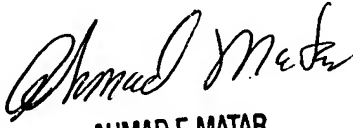
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad F. Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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KNN  
01/25/2008

  
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